

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/004601

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ A61K45/00, A61K31/443, A61P11/00//C07D405/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ A61K45/00-45/08, A61K31/00-31/80, A61P1/00-43/00,
C07D405/00-405/14

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1922-1996	Jitsuyo Shinan Toroku Koho	1996-2004
Kokai Jitsuyo Shinan Koho	1971-2004	Toroku Jitsuyo Shinan Koho	1994-2004

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

MEDLINE (STN), EMBASE (STN), BIOSIS (STN), BIOTECHABS (STN), CAPLUS (STN),
REGISTRY (STN), WPI (DIALOG), JSTPLUS (JOIS), JMEDPLUS (JOIS)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96/36624 A1 (Kyowa Hakko Kogyo Co., Ltd.), 21 November, 1996 (21.11.96), Claims; example 140; page 61, line 15 to page 63, line 3	1-7, 16-22
P, X	WO 03/066044 A1 (BOEHRINGER INGELHEIM PHARM GMBH & CO. KG), 14 August, 2003 (14.08.03), Example 140; description, page 26, line 26 to page 27, line 2	1-7, 16-22
P, A	WO 2004/005276 A1 (Kyowa Hakko Kogyo Co., Ltd.), 15 January, 2004 (15.01.04)	1-7, 16-22
A	WO 01/32165 A1 (SMITHKLINE BEECHAM CORP.), 10 May, 2001 (10.05.01)	1-7, 16-22

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered
to be of particular relevance"E" earlier application or patent but published on or after the international
filing date"L" document which may throw doubts on priority claim(s) or which is
cited to establish the publication date of another citation or other
special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than
the priority date claimed"T" later document published after the international filing date or priority
date and not in conflict with the application but cited to understand
the principle or theory underlying the invention"X" document of particular relevance; the claimed invention cannot be
considered novel or cannot be considered to involve an inventive
step when the document is taken alone"Y" document of particular relevance; the claimed invention cannot be
considered to involve an inventive step when the document is
combined with one or more other such documents, such combination
being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
16 June, 2004 (16.06.04)Date of mailing of the international search report
13 July, 2004 (13.07.04)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 03/016279 A1 (Tanabe Seiyaku Co., Ltd.), 27 February, 2003 (27.02.03)	1-7, 16-22
A	WO 02/098880 A1 (BAYER AG.), 12 December, 2002 (12.12.02)	1-7, 16-22
A	JP 2002-537383 A (Merck Frosst Canada and Co.), 05 November, 2002 (05.11.02)	1-7, 16-22

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 8-15
because they relate to subject matter not required to be searched by this Authority, namely:
The inventions according to claims 8 to 15 pertain to methods for treatment of the human body by therapy (PCT Article 17(2)(a)(i) and PCT Rule 39.1(iv)).
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT
Information on patent family members

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WO 96/36624 A1	1996.11.21	AU 9657029 A NO 9700151 A EP 771794 A1 KR 97704724 A US 2002/0128290 A1 US 6514996 B2 CN 1154697 A US 671697 B1
WO 03/016279 A1	2003.02.27	JP 2003-119180 A JP 2003-119195 A JP 2003-119196 A EP 1424326 A1
WO 01/32165 A1	2001.05.10	AU 200113445 A NO 200201937 A BR 200015039 A EP 1225884 A1 KR 2002050249 A SK 200200729 A3 CZ 200201443 A3 CN 200201443 A3 HU 200203682 A2 ZA 200203349 A US 2003/0212113 A1 MX 2002004220 A1 NZ 518002 A
WO 02/098880 A1	2002.12.12	EP 1397363 A1
JP 2002-538115 A	2002.11.12	WO 00/51599 A1 AU 200037150 A EP 1156800 A1 NO 200104221 A BR 200008625 A KR 2001102460 A HU 200200026 A2 CN 1350453 A CZ 200103148 A3 ZA 20010187 A UA 6555576 B1 MX 200100085 A1

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Claims 1 to 7 and 16 to 22

The inventions according to claims 1 to 7 and 16 to 22 are characterized in that, in the case of administering a compound having a PDE-IV inhibitory effect or its salt into the airway, the ratio of its concentration in a lung tissue to that in the plasma remains at a definite level or higher. Even though the description is examined, however, it is not specifically illustrated how to achieve such a ratio. Considering EXAMPLES, it is merely stated that a drug containing a compound having the chemical structure represented by the formula (II) in claim 7 satisfies the above ratio. It cannot be considered that this fact is self-evident for a person skilled in the art.

Concerning the inventions according to claims 1 to 7 and 16 to 22, therefore, the statement in the description does not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out.

As discussed above, the statement of the description does not comply with the prescribed requirements. In this international search report, therefore, prior art was searched exclusively relating to the case where the compound administered in practice into the airway in EXAMPLE was employed as a compound having a PDE-IV effect.